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OBLON, SPIVAK, MCCLELLAND, MAIER & NEUSTADT, P.C. 1940 DUKE STREET ALEXANDRIA, VA 22314				
			EXAMINER	
			REDDY, KARUNA P	
		ART UNIT	PAPER NUMBER	
		1713		
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		07/10/2007	ELECTRONIC	

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

patentdocket@oblon.com
oblonpat@oblon.com
jgardner@oblon.com

Office Action Summary	Application No. 10/586,134	Applicant(s) MICHL ET AL.	
	Examiner Karuna P. Reddy	Art Unit 1713	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 10-18 is/are pending in the application.
4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 10-18 is/are allowed.
- 6) ☐ Claim(s) ____ is/are rejected.
- 7) ☒ Claim(s) 15 and 16 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>11/17/2006</u> | 6) <input type="checkbox"/> Other: ____ |

DETAILED ACTION

Claim Objections

1. Claims 15-16 are objected to because of the following informality: Claim 15 recites "... obtainable" and should read "... obtained...". This limitation is applicable to a macromonomer "obtainable" by a stated process because any variation in any parameter within the scope of the claimed process would change the macromonomer produced. One who made or used a macromonomer made by a process other than the process cited in the claim would have to produce a macromonomer using all possible parameters within the scope of the claim, and then extensively analyze each product to determine if this macromonomer was obtainable by a process within the scope of the claimed process. Claim 16 recites ".... reacting the product of the reaction of an epoxy compound with said reaction product with a polyisocyanate...". For the sake of clarity and in light of the specification it should read ".....reacting the said product of the reaction of an epoxy compound with a polyisocyanate...". Appropriate correction is required.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 10-18 provide for the "method of using thermally polymerizable mixture consisting of multifunctional macromonomer", but, since the claim does not set forth any steps involved in the method/process, it is unclear what

method/process applicant is intending to encompass. A claim is indefinite where it merely recites a use without any active, positive steps delimiting how this use is actually practiced.

4. Claims 10-18 are rejected under 35 U.S.C. 101 because the claimed recitation of a use, without setting forth any steps involved in the process, results in an improper definition of a process, i.e., results in a claim which is not a proper process claim under 35 U.S.C. 101. See for example *Ex parte Dunki*, 153 USPQ 678 (Bd.App. 1967) and *Clinical Products, Ltd. v. Brenner*, 255 F. Supp. 131, 149 USPQ 475 (D.D.C. 1966).

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 10-14 are rejected under 35 U.S.C. 102(b) as being anticipated by Arkens et al (US 5, 661, 213).

Arkens et al disclose aqueous coating composition containing a polyacid and a polyol. The composition may be used as a binder for heat resistant nonwovens such as fiber glass (abstract). The addition polymer must contain at least two carboxylic acid groups such as (meth)acrylic acid, anhydride groups or salts thereof (column 4, lines 1-2) and read on the one or more free radically

polymerizable double bonds. The polyol may be a compound with a molecular weight less than about 1000 bearing at least two hydroxyl groups such as ethylene glycol, glycerol, 1,4-cyclohexane diol (column 6, lines 1-6). The addition polymer containing at least two carboxylic acid groups may have a molecular weight preferably from about 10,000 to 100,000 (column 4, lines 28-29). The polymerization reaction may be initiated by using the thermal decomposition of an initiator to generate free radicals to effect polymerization (column 5, lines 6-11). The curable aqueous composition may be used as a binder for heat resistant nonwoven fabrics such as certain polyester fibers, rayon fibers and glass fibers (column 8, lines 24-29). The heat resistant nonwovens may be used for applications such as insulation batts or rolls, as reinforcement scrim in cementitious and non-cementitious coatings for masonry (column 8, lines 61-67).

Therefore, Arkens et al anticipate the instant invention.

7. Claims 10-14 and 17-18 are rejected under 35 U.S.C. 102(b) as being anticipated by Baumgart et al (US 6, 534, 185 B1 - WIPO publication WO 00/26309 is used for date purposes and the US equivalent is referred to in the rejection below).

Baumgart et al teach a coating composition containing at least one polysiloxane macromonomer as binder (abstract). Suitable polysiloxane macromonomers are those having a molecular weight of from 1,000 to 40,000 (column 4, lines 53-55). Examples of macromonomers include acryloxysilane containing vinyl monomers having ethylenically unsaturated double bond content

(column 4, lines 64-67). The coating composition can be used in the field of coating of furniture and industrial coating (column 8, lines 31-34). It is possible to use substrates of glass, wood (column 8, lines 51-53). Examples of suitable polymerization initiators are those which form free radicals such as benzoyl peroxide, azobisisobutyronitrile. The initiators are used preferably in an amount of from 2 to 25% by weight (column 6, lines 39-45).

Therefore, Baumgart et al anticipate the instant invention.

8. Claims 10-14 and 17-18 are rejected under 35 U.S.C. 102(b) as being anticipated by Rockrath et al (US 6, 835, 420 B1 - WIPO publication WO 01/12736 is used for date purposes and the US equivalent is referred to in the rejection below).

Rockrath et al disclose a binding agent comprising two functional groups which can enter into crosslinking reactions with complimentary functional groups in crosslinking agent. The binding agent has at least one olefinically unsaturated polysiloxane macromonomer which contains at least 3.0 double bonds per molecule (abstract). The polysiloxane macromonomers have a number average molecular weight of from 2000 to 30,000 (column 6, lines 64-67; column 7, line 1). The olefinically unsaturated double bonds of the polysiloxane macromonomers for inventive use are present in acrylic, methacrylic, vinyl, and/or allyl groups (column 7, lines 21-22). The monomer mixture is polymerized with or more polymerization initiators (column 10, lines 61-63) and include dialkyl

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peroxides and azobisisobutyronitrile (column 11, lines 5-11). Suitable substrates include fiber composites, glass fibers and rock wool (column 19, lines 33-40).

Therefore, Rockrath et al anticipate the instant invention.

9. Claims 10-16 are rejected under 35 U.S.C. 102(b) as being anticipated by Reich et al (US 5, 602, 191).

Radiation curable acrylates are prepared by a process in which hydroxy compound is reacted with acrylic acid or methacrylic acid in a first stage. The reaction product of the first stage is reacted with an epoxide compound (abstract). The molecular weight of the polyesters or polyethers are preferably from 100 to 4,000 (column 2, lines 1-2). In the esterification of (meth)acrylic acid with the hydroxy compound, preferably from 0.1 to 1.5 equivalents, based on 1 hydroxy equivalent of the hydroxy compounds, of (meth)acrylic acid are used (column 2, lines 51-55). Acrylates obtained by the process are particularly suitable for materials which can be cured thermally (column 4, lines 25-27). They may be used as adhesives (column 4, lines 29-30). Particularly suitable crosslinking agents for subsequent crosslinking are isocyanate compounds such as polyisocyanates (column 4, lines 38-41).

Therefore, Reich et al anticipate the instant invention.

Claim Rejections - 35 USC § 103

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

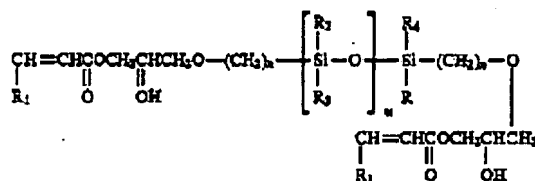
11. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148

USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

12. Claim 10-14 and 17-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Engelke et al (US 5, 686, 531).

Engelke et al disclose a coating agent comprising a binding agent containing at least one acrylate copolymer (A) with carboxyl group and/or at least one acrylate copolymer (B) with epoxide groups being obtained by solution polymerization of polysiloxane macromonomers having a number average molecular weight of 1,000 to 40,000 and an average 0.5 to 2.5 ethylenically unsaturated double bonds per molecule (abstract). The polysiloxane macromonomers of the following formula are preferably employed and read



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on the free radically polymerizable groups of claim 12. Suitable free radical initiators are organic peroxides, aliphatic azo compounds. The amount of initiator in most cases is 0.1 to 15% by weight based on the amount of monomer to be processed (column 10, line 62; column 11, lines 7-10).

The prior art is silent with respect to the use of this binder for granular or fibrous substrates such as glass fiber, rock wool etc.

However, it is held by court that the discovery of a previously unappreciated property of a prior art composition, or of a scientific explanation for the prior art's functioning, does not render the old composition patentably new to the discoverer." *Atlas Powder Co. v. Ireco Inc.*, 190 F.3d 1342, 1347, 51 USPQ2d 1943, 1947 (Fed. Cir. 1999). Thus the claiming of a new use, new function or unknown property which is inherently present in the prior art does not necessarily make the claim patentable. *In re Best*, 562 F.2d 1252, 1254, 195 USPQ 430, 433 (CCPA 1977). Furthermore, a recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim.

13. Claim 15-16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Arkens et al (US 5, 661, 213) in view of Rockrath et al (US 6, 835, 420 B1).

The discussion with respect to Arkens et al in paragraph 6 above is incorporated herein by reference. Furthermore, the composition can comprise a

polyacid containing at least two carboxylic acid groups or the salts thereof and a highly reactive polyol containing at least two hydroxyl groups wherein the ratio of the number of equivalents of said carboxylic groups, anhydride groups or salts thereof to the number of equivalents of said hydroxyl groups is from about 1/0.01 to about 1/3 (column 7, lines 18-26) and reads on the percentages of claim 15.

The prior art of Arkens is silent with respect to reacting the product obtained with at least one epoxy compound and subsequently reacting with polyisocyanate.

However, Rockrath et al teach binding agent comprising two functional groups which can enter into crosslinking reactions with complimentary functional groups in crosslinking agent. The binding agent has at least one olefinically unsaturated polysiloxane macromonomer which contains at least 3.0 double bonds per molecule (abstract). For thermally sensitive substrates it is advantageous to choose a temperature range which does not exceed 100°C. In view of these temperature conditions, hydroxyl groups and isocyanate groups or carboxyl and epoxy groups have proven advantageous as complimentary functional groups (column 8, lines 54-59). Therefore, it would have been obvious to one skilled in the art at the time invention was made to add polyisocyanate as a crosslinking agent to the binder of Arkens et al after reacting with epoxy crosslinker to cure the binder at low temperatures because the binder of Arkens et al comprises both carboxyl and hydroxyl groups and Rockrath et al have proven successfully that carboxyl and epoxy or hydroxyl and isocyanate are

advantageous as complimentary functional groups in the binder for curing at low temperatures and one of ordinary skill in the art would expect such crosslinkers to work for the binder of Arkens et al, motivated by expectation of success.

14. Claim 10 and 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Beck et al (US 5, 096, 938).

Beck et al disclose a radiation curable catalyst by reacting a) 1 equivalent of a dihydric to hexahydric oxyalkylated C₂-C₁₀ alcohol with b) from 0.05 to 1 equivalent of a dibasic to tetrabasic C₃-C₃₆ carboxylic acid or its anhydride and c) from 0.1 to 1.5 equivalents of acrylic acid and/or methacrylic acid and reacting the excess carboxyl groups with an equivalent amount of epoxide compound (abstract). To avoid premature polymerization, the esterification is advantageously carried in the presence of small amounts of inhibitors (column 2, lines 66-68). After esterification, the carboxyl groups of the acrylate resin and the excess acrylic acid or methacrylic acid are reacted with epoxide compounds (column 3, lines 14-21). For economical processability, in general low raw material and high reactivity are important with regard to the binder (column 1, lines 26-27).

The prior art differs in the addition of a polymerization inhibitor and the use of polymer as a binder for fibrous or granular substrates.

However, in light of the fact that the prior art teaches adding a polymerization inhibitor to avoid premature polymerization, it would have been obvious to one skilled in the art at the time invention was made to remove the

polymerization inhibitor and the properties associated with it to obtain the multifunctional macromonomer.

As to the usage of this binder for fibrous or granular substrates, the discovery of a previously unappreciated property of a prior art composition, or of a scientific explanation for the prior art's functioning, does not render the old composition patentably new to the discoverer." *Atlas Powder Co. v. Ireco Inc.*, 190 F.3d 1342, 1347, 51 USPQ2d 1943, 1947 (Fed. Cir. 1999). Thus the claiming of a new use, new function or unknown property which is inherently present in the prior art does not necessarily make the claim patentable. In re *Best*, 562 F.2d 1252, 1254, 195 USPQ 430, 433 (CCPA 1977). Furthermore, a recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim.

15. Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Beck et al (US 5, 096, 938) in view of Rockrath et al (US 6, 835, 420 B1).

The discussion with respect to Beck et al in paragraph 12 is incorporated herein by reference.

The prior art differs in the curing mechanism.

However, Rockrath et al teach binding agent comprising two functional groups which can enter into crosslinking reactions with complimentary functional groups in crosslinking agent. The binding agent has at least one olefinically

unsaturated polysiloxane macromonomer which contains at least 3.0 double bonds per molecule (abstract). For thermally sensitive substrates it is advantageous to choose a temperature range which does not exceed 100°C. In view of these temperature conditions, hydroxyl groups and isocyanate groups or carboxyl and epoxy groups have proven advantageous as complimentary functional groups (column 8, lines 54-59). Therefore, it would have been obvious to one skilled in the art at the time invention was made to add polyisocyanate as a crosslinking agent to the binder of Beck et al to cure the binder at low temperatures because the binder of Beck et al comprises hydroxyl groups in addition to carboxyl groups and Rockrath et al have proven successfully that hydroxyl and isocyanato are advantageous as complimentary functional groups in the binder for curing at low temperatures and one of ordinary skill in the art would expect such crosslinkers to work for the composition of Beck et al, motivated by expectation of success.

Conclusion

The "X" references (6, 835, 420 B1; 6, 534, 185 B1; 5, 602, 191; 5, 686, 531 A; 5, 661, 213 and 5, 096, 938) from the international search report has been considered and used in the rejection. The other "X" references have been considered but were not applicable.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Karuna P. Reddy whose telephone number is (571) 272-6566.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Wu can be reached on (571) 272-1114. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Karuna P Reddy
Examiner
Art Unit 1713

/KR/



DAVID W. WU
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 1700